LIS 125: Introduction to Library Application Packages (2 Units: Status= C L H=30)

Learning Outcomes:

At the end of the course, students should be able to:

i. Define the basic concepts in the course

ii. Identify different types of library application packages

iii. Discuss the different categories of library application packages and what they are used for iv. Describe the features of library application packages

v. Explain the limitations of library application packages

Course Content

Definition of terms-programs, software, application packages, etc. types of library application packages, e.g. VTLS, CD/ISIS, EOSIS Q Series,x-Lib. Open source packages, e.g. Koha, Greenstone, etc. Packages for institutional repositories, e.g. Dspace, Fedora, Eprint, etc. Features of library application packages. Uses of library application packages. Limitations of library application packages.

LIBRARY APPLICATION SOFTWARE

Library Application Software no doubt offers information managers many opportunities to improve Library services to their client. It makes information resources easier to be located and retrieved. Also, it enables library staff to serve library patrons better by facilitating execution of multitude operational tasks such as cataloguing, acquisition, circulation, OPAC, management of e-resources and reference services among others with less stress.

Library application software first flourished in the 1960"s being a period of expansion in higher education and increasing funds for library collections. As the rate of publication increased, libraries realized that they could not acquire and process materials fast enough with traditional manual systems and that automation could help to control costs on labour-intensive operations. The goals for library application software for libraries include:

i. Efficiency of internal operations,
ii. Access to local library resources
iii. Access to resources outside the library
iv. To achieve the interoperability between information systems necessary to build a global information infrastructure.

The use of library application software in university libraries has evolved from managing internal library operations to providing access to information and information res

ources in various formats and in many locations through a combination of Informati on and Communication Technologies (ICT). Following this development, there is a pa radigm shift from local collections to global information access, thus making it possi ble for the removal of geographic constraints to library services.

Library Application software is a sequence of instructions that tells the computer wha t to do, how to manipulate data and how to relate to users. It normally addresses one aspect of computing need or the other. (i.e the readily available software) for micro co mputers is referred to as "application software". An essential requirement of applicati on software is that it should have capabilities to:

a. Store and manipulate data
b. Provide the user with capability to create a database
c. Enable the user to input his or her information into the database created
d. Edit data thereby allowing for the immediate correction of entry errors or a correcti on at a later date.

Library Application Software is the use of computers and associated technologies to do exactly what has been done in the library with the justification of reduced cost or i ncreased performance. That is, it is the use of computers to perform library operation s most especially services that are routine and repetitive. library application software i s the application of automatic and semi automatic data processing machines to perf orm functions such as acquisition, circulation, cataloguing, reference service and seri al control. Library application software is defined as computer programs that are writt en individually to operate specific, tailor made procedures and systems such as librar y housekeeping, words processing, database management, text retrieval, expert syste ms.

Library Application software packages are sets of programs that are tailor-made to pe rform and automate library housekeeping routines while providing other services for d atabase management and information retrieval. They are basically a set of programs that are packaged together to perform specific library housekeeping routines like acq uisition, circulation, cataloguing serial control and reference services. They provide a one-window interface for the performance of these routines

There are generally two categories of library application software: Proprietary and Op en source. Proprietary Software refers to any computer software that has restrictions on any combination of the usage, modification, copying or distributing modified versi ons of the software. Proprietary software may also be called closed –source softwar e. Open Source Software (OSS) is computer software with its source code made avail able and licensed with a license in which the copyright is holder provides the right to s tudy, change and distribute the software to anyone and for any purpose. Open Source Software movement accelerated the development of compatible open source library s oftware, partly to provide an alternative to the sometimes highly prohibitive cost of th e Proprietary Software. Examples of Library application software are; Alice for Windo ws, GLASS, CDS/ISIS, Strategic Library Automation and Management (SLAM), Libert y, Tin-Lib, and X-Lib, Libsys, Virtua, E- Lib, Libra, Greenstone, Evergreen, Dspace, fedor a, KOHA, Millennium mi, Alexandria among others

TYPES OF LIBRARY APPLICATION SOFTWARE

University Libraries acquire and install different types of application software packag es to manage their operations and services in order to introduce efficiency in their ser vice delivery. These application software packages are discussed under the following sub-headings:

Library Integrated System / Library Management system Integrated Library System s (ILS): is the current wave in the field of library automation. An ILS combines several activities of the library into one integrated system, allowing the library staff to perfor m all their functions online. These activities include simple housekeeping activities lik e acquisition, cataloguing to user services, and inter-library loan activities. Integrated l ibrary systems (ILS) are multifunction, adaptable software applications that allow libr aries to manage, catalog and circulate their materials to patrons.

Integrated Library Systems (ILS) also known as Integrated Library Management syste ms are sets of programs and hardware that are used to perform library activities like a cquisition, cataloguing and circulation. They help librarians and users to circulate and catalogue items, manage user activities, track movement as well as interact with data bases from other libraries or institutions. They were designed to conform to the fourth law of Librarianship (Save the time of the user). They are a fast emerging technology that has changed the system of the library into automatic or in some cases semi-auto matic activities. They provide a centralized management process for libraries and thei r housekeeping routines. An Integrated Library System is a computer-based system u sed to manage internal and external resources including tangible assets, financial res ources, materials, and human resources. It is built on a centralized database and nor mally utilizes a common computing platform and consolidates all library operations i nto a uniform and enterprise wide system. They normally have incorporated in them a relational database, software that interacts with the database and two graphical user interfaces (one for the users and the other for staff). They are referred to as an integr ated system because they have separate software functions/instructions for different tasks called modules on a single window interface. This means they have the module for the different library housekeeping routines like acquisition, cataloguing, serial cont rol, circulation etc

The main type of software in use in libraries today is the integrated library system (IL S), which is the modern equivalent of the card catalog. An ILS provides a search interf ace to the library catalog and automates library tasks such as the tracking of book lo ans and returns. Although ILS vendors have added many different features, every ILS has nearly the same core components of cataloging and circulation tracking. Becaus e the ILS core is stable, it is suitable for collaborative development. Collaboratively de veloped computer programs are known as free software or open source software (OS S). Librarians and programmers have worked together to produce several open source ILSs. Users and developers are free to share and change open source programs, a pra ctice similar to sharing recipes.

Open source licenses ensure that OSS and its derivatives may be freely viewed, used,

copied, modified, and redistributed (Open Source Initiative, 2006). Examples of well-known OSS include the Mozilla Web browser, Apache Web server, KOHA, Evergreen and Linux operating system. One of the advantages of OSS is low cost and freedom from vendor lock-in. While some of the disadvantages of OSS are less ease of use and more need for technical expertise. The materials costs of OSS are low, but the labor costs of OSS might be higher. On the other hand, freedom from vendor monopoly allows competition among service contractors, which helps to keep labor prices down.

Other reported strengths of OSS include customizability, portability, and security. Free and open source software is the most permissive types of software for users. By contrast, proprietary software is the most permissive for software owners. A fee can be charged for distribution or technical support of OSS, yet a free version of OSS is usually available by download or compact disc. Integrated refers to the ability of the system to share data among its modules. For example, the information to order a book may be entered in the acquisitions module, which may be used by the cataloging module, and searched via the OPAC. This integration reduces redundant data and effort. A synonym for ILS is library management system (LMS). ILSs vary by factors including scalability, database type, operating system compatibility, support for machine-readable catalog (MARC) record formats, and interoperability with other library networks and articles databases. Libraries in developing countries such as Nigeria have depended on library automation software imported from developed countries like United States of America, United Kingdom and some European countries. Many library automation software packages have been available in the Nigeria market. Some of which includes liberty, TINLIB, GLASS, Alice for windows, innovative millennium and Virtua.

FEATURES OF AN INTEGRATED LIBRARY SYSTEM

An integrated library management system has several main features, which include:

1. A database – this is where all the information belonging to a library is stored, such as MARC (Machine Readable Cataloguing) records, patron information etc.
2. Cataloguing module – allows librarians to add materials to the database.
3. Circulation module – checks items in and out, keeping track of the location and status of the library's resources.
4. User management – this enables you to add, delete and manage your library's users.
5. Staff interfaces – this is the interface through which a librarian manages the ILS. Modern library management systems have webbased interfaces which are accessible through a local network or the internet via a web-browser.
6. OPAC – The Online Public Access Catalogue. This is the interface through which your patrons can search for books and other items, access their accounts, place holds, track their circulation history, make payments for fees and fines etc.
7. Reports – the ability to run various reports on item movement as well as staff and user activities.

TYPES OF LIBRARY APPLICATION PACAKAGES

Computerized Documentation Service/Integrated Set of Information System (CDS/ISIS)

CDS/ISIS is an integrated menu-driven software package developed by UNESCO in 19

85. It is an information management system with numerical data elements stored in a database. A database is a file of related data collected and organised to satisfy the information needs of the a particular user community, It is used for creating manipula ting textual databases Textual databases are well suited for bibliographic application which makes them ideal to be used for the catalogues in small and medium sized libr aries. The CDS/ISIS database contains files with which can be defined and manipula ted in the following ways

i. Display records
ii. Entre new records
iii. Define database
iv. Correct, modify and delete records
v. Retrieve records
vi. Sort the records

Features of Computerized Documentation Service/Integrated Set of Information Sy stem (CDS/ISIS)

The features of Computerized Documentation Service/Integrated Set of Information System are as follows

i. Uses variable length text fields
ii. Repeatable fields
iii. Has sub-fields
iv. Uses inverted files to enable faster searching of the database
v. Functions in a multi- access environment
vi. Free of charge
vii. Has multi-lingual version
viii. Uses indexing techniques

Types of Integrated Library Systems

Types of Integrated Library Systems are

1. Proprietary Integrated Systems
2. Open Source Integrated Library Systems

PROPRIETARY INTEGRATED LIBRARY SYSTEMS

Proprietary Integrated Systems are software and hardware that are owned by an indiv idual or a company (usually the one that developed it.) There are almost always majo r restrictions on its use, and its source code is a always kept secret. Proprietary library systems are ILSs which are basically ready-made and ready-to-use systems. Conventi onally, closed or proprietary systems are developed by private or commercial entities. Most often, these entities take charge in furthering the system including systems mai ntenance. Source codes are not shared by the companies or vendors. In so doing, libr aries and information centers remain dependent to them for updates or development s.

Examples of proprietary integrated library systems are:

1. Software for University Libraries (SOUL)
2. Visionary Technology in Library Solutions (VTLS)
3. Mandarin
4. LIBSYS

Software for University Libraries (SOUL)

SOUL is developed by INFLIBNET Centre, Ahmedabad. One of the objectives of the IN FLIBNET Centre was to develop a Library Management Software for automating the u niversity libraries. Keeping in view the latest trends in Information Technology, it has d eveloped a Windows based Library Management Software called "SOUL", which provi des total solution for Library Automation of university libraries in India *(SOUL, 2006).* Keeping in mind the fact that university libraries are complex entities, having large col lections and serving a huge clientele, the software has the flexibility. The SOUL works on Windows platform and it needs MS-SQL as the backend software. SOUL is design ed using Client-Server Architecture, which imparts extra strength to storage capacity, multiple accesses to single database, various levels of security, back up, and storage facilities etc. This software has been designed after a comprehensive study of differe nt library related functions practiced in university libraries. This userfriendly software is quite easy to work with. The software comprises all the necessary housekeeping op erations such as Acquisitions, Catalogue, Circulation, OP AC, Serial Control and Admi nistration modules. The in-built network feature of the software will allow multiple libr aries of the same university to function together as well as have access to the distrib uted databases installed at various university libraries and union catalogue mounted at INFLIBNET by using a network. SOUL handles Indian languages/scripts by using ISM Publisher and GIST of C-DAC. It adheres to all international standards such as MARC 21, ISBD, ISDS, AACR2, Language Codes ISO 6 39:1988, Country Codes ISO 3166, ISO 2709 format, etc. for data input and other func tions. It has inbuilt Barcode software also to generate and print barcodes for items an d members.

The modules in SOUL are as follows

1. Administration
2. Acquisition
3. Catalogue
4. Circulation
5. Serials Control
6. OPAC and WEB OPAC

Features of Software for University Libraries (SOUL)

Some features of Software for University Libraries (SOUL) are;

1. Client-server based architecture,
2. User-friendly interface that does not require extensive training;
3. Supports multi-platform for bibliographic database such as MySQL, MS- SQL or any other RDBMS;
4. Supports cataloguing of electronic resources such as e-journals, e-books, virtually any type of material;
5. Supports requirements of digital library and facilitate link to full-text articles and other digital objects;
6. UNICODE-based multilingual support for Indian and foreign languages;
7. Compliant to International Standards such as MARC21, AACR-2, MARCXML;
8. Supports online copy cataloguing from MARC21-based bibliographic database;
9. Provides default templates for data entry of different type of documents. User can also customize their own data entry templates;

10. Provides freedom to users for generating reports of their choice and format along with template and query parameters;
11. Supports ground-level practical requirements of the libraries such as stock verification, book bank, maintenance functions, transaction level enhanced security, etc.;
12. Provides facility to send reports through e-mail, allows users to save the reports in various formats such as PDF, Excel, MARCXML, etc.;
13. Highly versatile and user-friendly OPAC with simple and advanced search;
14. Provides simple budgeting system and single-window operation for all major circulation activities;
15. Online software update;
16. Affordable cost with strong institutional support

Visionary Technology in Library Solutions (VTLS)

Visionary Technology in Library Solutions (VTLS), Virginia, USA based company developed a comprehensive integrated library automation software. VTLS has brought out a number of products now VALET is popular library management software better known as digital library software. It has Virtual Integrated Library Management Software. It has been developed on Windows and UNIX platforms. In addition to the standard ILS modules, acquisitions, cataloging, circulation, and serials control, VTLS will provide a number of customized solutions to manage library better. It has features such as InfoStation (Web based); Ad Hoc Profiler (parameterization tool); Z39.50 OPAC; Interlibrary Loan (ILL); 3M Self-Check Interface; etc. *(VTLS Inc., 2006).*

Mandarin

Mandarin announces the release of M5, a modern online catalog, fully web based, and the first of many updates in development. Like previous versions of Mandarin, M5 provides access to library resources from any workstation, at the library or remotely. M5 helps single libraries, libraries with multiple sites and school districts lower costs and save time with one-point installation, maintenance and updates.

LIBSYS

Libsys is a modular web-based library automation system. It is an Integrated Library Management Software package designed and developed by Libsys Corporation, New Delhi. It covers all the activities concemed with library management like acquisition, circulation, cataloguing, serial control, article indexing, abstracting, OPAC.

OPEN SOURCE INTEGRATED LIBRARY SYSTEMS /OPEN SOURCE PACKAGE

Open source ILSs refers to a program in which the source code is available to the general public for use and/or modification from its original design free of charge. It allows users to modify the program according to need and to develop new code that improves the application. This technique helps to provide better quality software's having higher reliability, flexibility with lower cost. It is available free for download on the Internet. The examples of Open Source ILSs include:

1. KOHA
2. NEWGENLIB
3. EVERGREEN
4. MILENNIUM

KOHA

KOHA is the first open source software library automation package. It was developed in 1999 by Katapo Communication Ltd in New Zealand for Horowhenua library trust a nd first implemented in January 2000. It is currently maintained by a team of softwar e providers and library technology staffs around the world. In use worldwide, its devel opment is steered by a growing community of users collaborating to achieve their tec hnology goals. The KOHA ILS includes catalogue, OPAC, circulation, member manage ment, and acquisitions package. KOHA is used by public libraries, private collectors, a cademic libraries not-profit organizations, churches, schools, and corporate. To install KOHA for use following configuration is required. It requires a Linux server, apache, M ySQL, Perl, Root on the server, a reasonable level of command with command line an d database administration skill. Paul Poulain had begun adding multiple language su pport to KOHA in 2001.KOHA is available in several languages viz. English, French, Ch inese, and Arabic e.t.c. An Ohio based company LibLime was established in 2005 to s upport KOHA. It supports the international bibliography records and cataloguing stan dards MARC21, UNIMARC, Copy Cataloguing and Z39.50. It runs on different platfor m like Linux, MacOSx, FreeBSD, Solaris, and Windows. Originally developed on the Li nux OS, is written in Perl, uses Apache web server, has better support for multi-RDBM S like MySQL, PostgreSQL. OPAC interface is in CSS with XHTML. KOHA-3.x supports Zebra full text search engine as backend, in addition to MySQL / PostgreSQL.

KOHA Software

The KOHA is the first open source software that has full Integrated Library System (IL S) features. Its development started in 1999. KOHA Software is founded by a group o f libraries in New Zealand that discover that proprietary software is expensive and lac ks some features needed for library operations. KOHA Software has been translated i nto different language for easy use and accessibility. KOHA Software modules cover:

* Circulation
* Patron: check / view users activities (Checking out items ,reserving, overdue fines a nd registration of users
* Cataloguing
* Serials
* Reports: An accounts module for every KOHA modules
* KOHA Tools: Administration tools for modification

Features of KOHA Software

The features **KOHA Software are;**

1. Has full features of Integrated Library System
2. We based interface
3. Web based OPAC system
4. No vendor
5. Easy for conducting search by all users
6. Print barcodes
7. Copy cataloguing and Z39.50
8. Enables modification and update in circulation, cataloguing\
9. A full acquisitions module complete with budgets, book funds, suppliers and exch

ange rates. Simple acquisitions for the smaller library.
10. Circulation: a fully featured circulation with circulation rules customizable to need s of your library.
11. An OPAC: the public side of KOHA. This has all the features you would expect, plu s enhanced content from sources like Amazon, Google Books, etc.
12. Flexible reporting: you have access to all the data in the database and a reporting engine is provided to help you query it.
13. Customizable item types: you can choose exactly how you want to catalogue you r items. This flexibility also allows KOHA to be used to manage inventory such as ca meras or computers.
14. Able to catalogue websites as items, or have them as links to existing records.
15. Barcode scanning: KOHA works in a web browser, so any scanner that works with your PCs can be used with KOHA.
16. Barcode printing: KOHA can be used to print barcodes and spine labels.
17. User management: KOHA manages your users, including integration with systems like LDAP, Radius, Active Directory and SAML, to allow single sign-on.
18. KOHA uses a full text indexing engine to allow for fast and powerful searching of all of your metadata.
19. Mature support for all major library standards including MARC21, UNIMARC, Z39. 50, SRU/SW, SIP2 and many more.
20. Automated overdue notices either by email or SMS. KOHA can also send advance notices to wam a borrower that an item is nearly due. KOHA can email issue slips inst ead of printing them at point of circulation.
21. KOHA can work in consortia, multi-branch or single-branch mode.
22. KOHA has been translated into many languages including Te Reo Māori.
23. KOHA has an offline circulation module.
24. Self-Check: KOHA can be used with any SIP2 compliant self-check machines.
25. Faceted search: Search results are classified for easier drilling down.

NEWGENLIB

NewGenLib is library automation software. It was developed by over a 4-year joint eff ort between professional charitable trusts, Kesavan Institute of Information and Know ledge Management (KIIKM) and a software development company Verus Solutions P vt Ltd (VSPL), both in Hyderabad in India. It was developed in March 2005. It was tota lly proprietary library software but 9th Jan.2008, it was declared as open source soft ware under GNU GPL v3 License. It has abilities a library manage its housekeeping op eration, viz., acquisition of book and other materials creation and maintenance of its catalog database, circulation of its holdings, etc. NewGenLib allow library to define it s own network of libraries. One library in the network called Host library install the sof tware on its public domain server and then configures other libraries as Associate libr aries on its network. NewGenLib can be installed on Linux and Window operating syst em. It has Compatibility - Complies with international metadata and interoperability st andards: MARC-21, MARCXML, z39.50, SRU/W, OAI-PMH

Main Features

1. Functional modules are completely web based. Uses Java Web Start Technology.
2. Compatibility - Complies with international metadata and interoperability standard

s: MARC-21, MARC-XML, z39.50, SRU/W, OAI-PMH.
3. OS independent - Windows and Linux flavors' available and Uses chiefly open source components.
4. Easily extensible to support other languages and Data entry, storage, retrieval in a ny (Unicode 3.0) language.
5. Supports multi-user and multiple security levels and Allows digital attachments to metadata.
6. Networking – Hierarchical and Distributed networks.
7. Scalable, manageable and efficient.
8. RFID integration.
9. Automated email/instant messaging integrated into different functions of the software.
10. Form letters are configurable and use XML-based Open Office templates.
11. Extensive use of set up parameters enabling easy configuration of the software to suit specific needs, e.g., in defining patron privileges.

EVERGREEN

The Evergreen Project develops an open source consortia quality ILS (integrated librar y system) used by over 1000 libraries around the world. The software, also called Ever green, is used by libraries to provide their public catalog interface as well as to manag e back-ofhouse operations such as circulation (checkouts and checking), acquisition of library materials, and (particularly in the case of Evergreen) sharing resources amo ng groups of libraries. The Evergreen Project was initiated by the Georgia Public Libra ry System (GPLS) in September 2006 to support Public Information network for Electr onic services (PINES). Equinox Software is the company that provides support, develo pment, migration service and other service for library using evergreen.

Main features:

1. Evergreen is a metadata search engine.
2. Evergreen is a transaction processing engine.
3. Evergreen is just another web application.
4. Evergreen is based on a robust, scalable, message-passing framework – Open SR F
5. Search the collection.
6. See the details of the records as well as their availability.
7. Reserve items.
8. Request for check-out
9. View their transaction history
10. View their current check outs and also renew them
11. View their current reservations and also cancel them
12. View their current requests for check-out and also cancel them
13. List of new arrivals
14. Login using their Library card number/Email id

THE MILENNIUM INTEGRATED LIBRARY SYSTEM :

The Millennium Integrated Library System (ILS) offers libraries a technology architect

ure that is broad, stable, and includes what libraries need to meet their most pressing technology challenges. Innovative designed Millennium not just for libraries, but also for librarians. Millennium's modules reliably support simple, everyday library transacti ons while at the same time meeting the demands of the most sophisticated cataloge r, circulation manager, or Web librarian. Innovative has worked to make Millennium a comprehensive solution that streamlines library operations so librarians can focus on doing what they do best, being librarians. Core library functions that leave nothing ou t, supportability that keeps it simple, Web tools that make you accessible, and integrat ion that makes it all work.

PACKAGES FOR INSTITUTIONAL REPOSITORIES

DSpace: The DSpace is a joint project of the MIT Libraries and HP labs. It is a digital asset management system that allows institutions, such as libraries to collect, archiv e, index, and disseminate the scholarly and intellectual efforts of a community. Writte n with a combination of technologies by MIT, it is primarily used to capture bibliograp hic information describing articles, papers, theses, and dissertations. DSpace is adap table to different community needs. Interoperability between systems is built-in and it adheres to international standards for metadata format. Being an open source techno logy platform, DSpace can be customized to extend its capabilities.

Greenstone: Greenstone is a suite of software for building and distributing digital libr ary collections. It provides a new way of organizing information and publishing it on t he Internet or on CDROM.

Fedora Flexible Extensible Digital Object and Repository Architecture (Fedora) is a too lkit to build a digital object repository management system. The system, designed to be a foundation upon which interoperable web-based digital libraries, institutional rep ositories and other information management systems can be built, demonstrates ho w distributed digital library architecture can be deployed using web-based technologie s, including XML and Web services.

E-prints: The primary purpose of the E-Prints software is to help create open access t o the peerreviewed research output of all scholarly and scientific research institution s. The default configuration creates a research papers archive, but could be used for other purposes.

CDSWare CERN Document Server Software (CDSware) allows one to run one's own el ectronic preprint server, online library catalogue or a document system on the web. It c omplies with the Open Archives Initiative metadata harvesting protocol (OAI-PMH) an d uses MARC 21 as its underlying bibliographic standard.

LIMITATIONS OF LIBRARY APPLICATION PACKAGES

There are many constraints to any kind of development in university libraries world ov er. It is not an easy environment in which to move ahead to computerize its operation s and services.

1. hardware breakdown
2. software problems
3. unreliable power supply
4. inadequate funding
5. staff training deficiency and planned obsolescence of commercial software
6. manpower problem
7. funding, poor maintenance of equipments